# LEGGETTE, BRASHEARS & GRAHAM, INC.

# PROFESSIONAL GROUNDWATER AND ENVIRONMENTAL ENGINEERING SERVICES

SIX EXECUTIVE DRIVE, SUITE 109 FARMINGTON, CT 06032 860-678-0404 FAX 860-678-0606 www.lbgweb.com

August 3, 2012

Ms. Kimberly Tisa PCB Coordinator USEPA New England, Region 1 5 Post Office Square - Suite 100 Boston, MA 02109-3912

RE: Notification of Proposed PCB Remediation Activity
Dell Manufacturing Company/Seragon Associates

4 Right Lane, Farmington, Connecticut

Dear Ms. Tisa:

Attached please find one copy of a proposed work plan for remediation of polychlorinated biphenyls (PCBs) in soil at the above-referenced location. This notification is being provided in accordance with Code of Federal Regulations, Chapter 40, Part 761.61(a)(3).

Thank you in advance for your review and comment on this plan. Please do not hesitate to contact me at (860) 678-0404 if you have any questions.

Very truly yours,

LEGGETTE, BRASHEARS & GRAHAM, INC.

Michael Susca Senior Associate

MS:nv

Mr. Gary Trombley, Connecticut Department of Energy & Environmental Protection James Wendell, Seragon Associates

H:\Dell\2012\Transmittal letter.docx





### **Detailed Results**

Tracking no.: 793865781580

Select time format: 12H

#### Delivered

Delivered Signed for by: .RYAN

Shipment Dates

Destination

Ship date Aug 6, 2012 Delivery date Aug 7, 2012 10:31 AM

BOSTON, MA Signature Proof of Delivery

#### **Shipment Options**

Hold at FedEx Location
Hold at FedEx Location service is not available for this shipment.

#### **Shipment Facts**

Service type Weight

Priority Pak 1.0 lbs/.5 kg Delivered to

Mailroom Dell

# **Shipment Travel History**

Select time zone: Local Scan Time

All shipment travel activity is displayed in local time for the location

| Date/Time            | Activity                           | Location          | Details |
|----------------------|------------------------------------|-------------------|---------|
| Aug 7, 2012 10:31 AM | Delivered                          | BOSTON, MA        |         |
| Aug 7, 2012 8:36 AM  | On FedEx vehicle for delivery      | SOUTH BOSTON, MA  |         |
| Aug 7, 2012 6:48 AM  | At local FedEx facility            | SOUTH BOSTON, MA  |         |
| Aug 7, 2012 4:58 AM  | At destination sort facility       | EAST BOSTON, MA   |         |
| Aug 7, 2012 4:17 AM  | Departed FedEx location            | NEWARK, NJ        |         |
| Aug 7, 2012 12:21 AM | Arrived at FedEx location          | NEWARK, NJ        |         |
| Aug 6, 2012 9:44 PM  | Left FedEx origin facility         | WINDSOR LOCKS, CT |         |
| Aug 6, 2012 3:25 PM  | Picked up                          | WINDSOR LOCKS, CT |         |
| Aug 3, 2012 1:53 PM  | Shipment information sent to FedEx |                   |         |

# SELF-IMPLEMENTING PCB CLEANUP WORK PLAN DELL MANUFACTURING COMPANY/SERAGON ASSOCIATES 4 RIGHT LANE, FARMINGTON, CONNECTICUT

Prepared For:

Seragon Associates

August 2012

# Prepared By:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
6 Executive Drive, Suite 109
Farmington, Connecticut 06032

Prepared By:

Michael Susca, LEP, CPG

Senior Associate

Reviewed By:

Michael Manolakas, LEP, CPG

Vice President

| Ц |  |  |  |
|---|--|--|--|
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
| _ |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
|   |  |  |  |
| L |  |  |  |
|   |  |  |  |

# TABLE OF CONTENTS

|     |       |  | <u>Page</u> |
|-----|-------|--|-------------|
| 1.0 | INTF  | RODUCTION  | 1           |
| 2.0 | SITE  | BACKGROUND   | 1           |
| 2.0 | 2.1   | Site Features and History                                    |             |
|     | 2.2   | General Nature and Extent of Contamination                   |             |
|     |       | 2.2.1 Distribution of PCBs on Site                           |             |
|     |       | 2.2.3 Interpretation of Available Data/Conceptual Site Model |             |
| 3.0 | PRO   | POSED CLEANUP PLAN   | 10          |
| 3.0 | 3.1   | Cleanup Levels and Areas                                     |             |
|     | 3.3   | Schedule   |             |
|     | 3.4   | Cleanup Verification   |             |
|     | 3.5   | Disposal   |             |
|     | 3.6   | Equipment Decontamination                                    | 13          |
|     | 3.7   | Containment Measures   | 13          |
|     | 3.8   | Health and Safety Measures                                   |             |
|     | 3.9   | Deed Restriction.  |             |
| 4.0 | Writt | ten Certification  | 14          |

# TABLE (at end of report)

# <u>Table</u>

Summary of PCBs and ETPH Detected in 2012 Soil Samples

# LIST OF FIGURES (at end of report)

| <b>Figures</b> |   |
|----------------|---|
| 1              | Site Location Map   |
| 2              | Phase III Soil Boring Locations                                 |
| 3              | Distribution of PBC at Soil Boring Locations                    |
| 4              | Cross Section Showing Pre-Excavation PCB Concentrations, PRA #6 |
| 5              | Post-Excavation Sampling Locations                              |

# LIST OF APPENDICES (at end of report)

# Appendix I Selected Information From Historical Reports II Characterization Sampling Procedures III Laboratory Reports (CD) IV Data Validation And Usability Narrative (2012 Data)

# SELF-IMPLEMENTING PCB CLEANUP WORK PLAN DELL MANUFACTURING COMPANY/SERAGON ASSOCIATES 4 RIGHT LANE, FARMINGTON, CONNECTICUT

# 1.0 INTRODUCTION

The following proposed work plan was prepared by Leggette, Brashears & Graham, Inc. (LBG) on behalf of Seragon Associates (Seragon), the owner of the property located at 4 Right Lane, Farmington, Connecticut (figure 1). Dell Manufacturing Company (Dell) has operated on the site since 1967. Polychlorinated biphenyls (PCBs) were identified in surface soil at one location at this site at concentrations greater than 50 mg/kg (milligrams per kilogram) and were also identified in subsurface soil and surface soils at other locations at low concentrations (less than 1 to 7 mg/kg). This notification is being provided under the self-implementing cleanup option for on-site cleanup and disposal of PCB remediation waste (40 CFR 761.61(a)).

# 2.0 SITE BACKGROUND

# 2.1 Site Features and History

Dell conducts metal machining including drilling, grinding, milling and lathe work to produce parts for the aerospace industry. In the past, Dell also conducted painting, metal etching and small-scale cadmium brush touch-up plating at the site. The site was first developed in 1967 by Dell.

The site is underlain by fine-to-coarse and medium-to-coarse sands with varying amounts of gravel and silt. Bedrock was encountered in this area at depths of approximately 30 ft bg (feet below grade). Shallow groundwater below the building area flows in the unconsolidated sediments to the southeast.

There is no knowledge of on-site use of PCB-containing cutting oils or hydraulic fluids. According to the Agency for Toxic Substances and Disease Registry (ATSDR) toxicological profile for PCBs, Aroclor 1254 was used in cutting oils and Aroclors 1232, 1242, 1248, 1254 and 1260 were used in hydraulic fluids. According to ATSDR, most domestic use of PCB after 1974 was limited to 'nominally closed applications', which would not have included cutting oils. According to site personnel, the use of petroleum cutting oils was phased out between the 1970s and 1980s, and a large number of machines that used petroleum-based cutting oils were sold in 1984. Hydraulic oils were reportedly segregated from cutting oils.

Environmental assessments as early as 1995 identified the presence of chlorinated volatile organic compounds (cVOCs) and petroleum impacts to soil and groundwater, and the majority of those impacts were attributed to releases from the original 550-gallon, waste-oil underground storage tank (UST) (removed in 1980). Some other localized petroleum impacts were also identified. An air sparge/soil-vapor extraction (AS/SVE) system was installed and operated at the site from 1998 to 2001 to remediate cVOCs and petroleum. Since 2001, monitoring of groundwater quality at the site has been performed to verify the effectiveness of the groundwater remediation system and subsequent natural attenuation of the plume.

At the request of the Connecticut Department of Energy & Environmental Protection (CTDEEP), the site was formally entered into the Voluntary Remediation Program (Connecticut General Statutes Section 22a-133x) in November 2000 with the submittal of an Environmental Condition Assessment Form (ECAF) to the CTDEEP, and subsequent investigation work was performed under CTDEEP oversight. The business was transferred in 2011, and as a result of that transfer, another ECAF was prepared and submitted to CTDEEP under Connecticut's Property Transfer Law (CGS Section 22a-134). The certifying party, Wendell Enterprises, is obligated to investigate the parcel in accordance with prevailing standards and guidelines and remediate the parcel in accordance with Connecticut's Remediation Standard Regulations (RSRs). Current investigation and remediation work is being performed under the oversight of a Connecticut Licensed Environmental Professional.

Numerous site investigations were conducted between 1990 and the present, and the results were documented in the following reports:

NUS Corporation, June 26, 1990; "Final Screening Site Inspection"

Shanahan Consulting, December 1995; "Phase I & II Environmental Site Assessment of Dell Manufacturing Property"

GZA GeoEnvironmental, Inc., April 1996: "Underground Storage Tank Removal and Phase III Environmental Services"

GZA GeoEnvironmental, Inc., July 1997; "Supplemental Phase III Environmental Site Investigation and Remedial Feasibility Evaluation"

Roy F. Weston, Inc., July 25, 1997; "Final Site Inspection Prioritization Report"

Scientech, January 20, 2004; "Supplemental Investigation Report"

LBG, January 2008; "Supplemental Site Characterization Report"

LBG, July 2011; "Supplemental Site Characterization and Remedial Alternatives Assessment"

# 2.2 General Nature and Extent of Contamination

The following 'release areas' (RAs) and 'potential release areas' (PRAs) were identified at the site and investigated between 1995 and 2011. Investigations completed between 2000 and 2011 were conducted under the Voluntary Remediation Program, with the CTDEEP providing technical evaluation and approval of sampling plans and technical reports.

| RA #1  | Former Septic System                               |
|--------|--|
| RA #2  | Former 500-gallon UST                              |
| RA #3  | Former 4,000-gallon UST                            |
| PRA #4 | Former Dry Well                                    |
| PRA #5 | Former Drainage Pipe                               |
| PRA #6 | Former Empty-Drum Storage Area                     |
| PRA #7 | Wooded Area West of the Building (Sludge Deposits) |
| PRA #8 | Bare Soil near Southern Door                       |
| PRA #9 | Former Floor Drain Discharge                       |

Areas below the floor of the manufacturing building were added as an area of interest in 2010 and the exterior electrical transformer was added as an area of interest in 2012. Figure 2 shows the locations of these areas.

# 2.2.1 Distribution of PCBs on Site

PCBs were identified in soils in the vicinity of RA#2 and RA#3, PRA#6, PRA#8 and the transformer. Additional details on the historical operations and the PCB findings specific to each of these areas and the manufacturing area are presented below. Figure 2 shows the boring locations where PCBs were detected in one or more soil samples.

# Former Empty Drum Storage Area (PRA#6)

NUS Corporation (1990) noted an empty-drum storage area northwest of the building and Roy F. Weston, Inc. (1997) also showed a small, fenced, drum-storage area in this location

(based upon site visits in April and July 1995). Shanahan Consulting (December 1995) refers to the area as an empty-drum storage area, but did not note the presence of a fence. Mr. James Wendell, former president of Dell and Managing Member of Seragon, confirmed that used, empty drums from metal recyclers were historically stored in this area prior to use by Dell (drums containing metal chips from the manufacturing processes were stored inside the northwestern area of the building). Consequently, these empty drums represent a possible source of PCBs to the site unrelated to cutting or hydraulic oils used by Dell in their manufacturing processes. The highest concentrations of PCBs identified on the site were found in surface soils in this area.

During a 1995 site assessment (Shanahan, 1995), a stained soil layer with a slight petroleum odor was noted slightly below the ground surface in this area and a subsequent soil sample contained 52,980 mg/kg (milligrams per kilogram) of total petroleum hydrocarbons (TPH). This observation is consistent with a surface release such as might occur from a drum stored on unpaved ground. Scientech also collected two surface-soil and two subsurface-soil samples from this area in 2002. Extractable TPH (ETPH) was detected in all four samples at concentrations as high as 1,300 mg/kg. VOCs were not detected in either of the subsurface samples. Barium, copper and zinc were detected in the Synthetic Precipitation Leaching Procedure (SPLP) extract (1995). Cyanide was not detected. One of the 2002 surface-soil samples contained several metals (cadmium, chromium, copper and nickel) at concentrations that appeared to be elevated with total chromium detected at 299 mg/kg. These early investigations did not include analysis for PCBs.

LBG collected soil samples from five borings within/close to PRA #6 (B-7, B-8, B-9, B-10 and B-11) in 2009 to determine the vertical and lateral extent of ETPH and to screen for other contaminants of concern (COCs) (LBG, 2011). ETPH was detected at concentrations up to 3,504 mg/kg in 4 of 5 surface-soil samples (0-2 feet below grade interval). PCBs were detected at concentrations up to 4.0 mg/kg in 2 of 5 surface soil samples. Summary tables from this report are provided in Appendix I.

Additional samples were collected by LBG in March 2012 to further delineate the nature and extent of PCBs, and to provide additional characterization of the ETPH in soil (borings B-7A, B-10a, B-50, B-51, B-52 and B-53). The sample intervals in the shallow soil were reduced to 3 inches in length and all samples were extracted using the Soxhlet method. PCB

concentrations ranged up to 450 mg/kg (Aroclors 1248 and 1254), but decreased rapidly with depth, such that PCB concentrations were less than 5 mg/kg and often less than 1 mg/kg at 2 ft bg. In April 2012, borings were drilled in a grid pattern in this area of the site to provide additional delineation and borings 4C, 4D, 6C and 7C were drilled near PRA#6. PCBs were detected, but the highest concentration (6.3 mg/kg) was identified at the approximate depth of the water table and only Aroclor 1254 was reported. These 2012 data are presented on table 1 and displayed in the cross section on figure 4.

ETPH was also detected in the subsurface samples collected in this area. At samples B-8 (6 to 8 ft bg) and B-10 (8 to 10 ft bg), the ETPH concentration was higher than in samples above that interval, suggesting that the ETPH has likely migrated from upgradient RA#2.

In the interest of mitigating any potential direct-exposure hazard posed by the presence of greater than 50 mg/kg PCB in near-surface soil, the former drum-storage area was cordoned off using snow fence following the March 2012 sampling. In June 2012, the surface soil in this area was removed to a depth of 1.5 to 1.75 ft bg in an attempt to reduce on-site PCB concentrations to less than 50 mg/kg. The shallow excavation encountered buried piping in some areas at depths of 1.5 to 2 ft bg (possibly the piping to the former 500-gallon UST and some AS/SVE-system piping). The excavated soil (15 tons) was transported to CWM Chemical Services LLC in Model City, New York, for disposal. Post-excavation soil samples were collected on a 1.5meter by 1.5-meter grid (figure 5). The analytical results indicate that PCB concentrations below most of the area were reduced to 2.6 to 11 mg/kg; however, samples collected at the base of the northeastern portion ranged from 19 to 94 mg/kg at depths of approximately 1.75 to 2 feet below the pre-excavation grade (table 1). Analytical results again indicated a mixture of Aroclors 1248 and 1254 in all of the post-excavation samples.

# Former 500-Gallon Underground Storage Tank (RA#2)

The former 500-gallon waste-oil UST (RA#2) was located northwest. The UST was used to contain waste-cutting and water-soluble oils and solvents. installed prior to 1970, and a 1970 Water Resources Commission inspection for 1976) appears to indicate piping between a drain in the northwestern portion of the UST. The UST was removed in 1980 and reportedly had no visible leaks removal. Soil samples were not collected at the time of UST removal, but subset

indicate that releases of petroleum hydrocarbons and solvents did occur from this area, either from the UST or during waste transfer into or out of the UST.

Soil sampling conducted in 1995 (Shanahan) identified cVOCs in subsurface-soil samples collected near the former UST and the downgradient loading-dock area indicating that a release had likely occurred from the former 500-gallon UST or from associated filling and emptying of the UST. The samples were not analyzed for PCBs.

LBG conducted additional investigation in this area in 2009. In borings B-1 through B-6, most ETPH impacts were identified in soils at or below the seasonal high water table (borings B-2, B-4, B-5 and B-6). One exception is boring B-3, where petroleum impacts were identified beginning in the surface-sample interval. B-3 was drilled in the approximate footprint of the former UST and may have been impacted by surface spills or the samples could represent deeper soil disturbed during UST removal and reused for backfill. Trace concentrations of PCBs were identified in some of these samples (2-foot intervals) at concentrations between 0.5 and 1.4 mg/kg. All detections were reported as Aroclor 1254. ETPH concentrations in these samples ranged from 1,341 to 10,539 mg/kg.

Grid sampling (borings 1A, 2A, 3A, 1B, 2B, 3B, 4B, 1C, 2C, 3C, and 4C) was conducted in this area by LBG in 2012 using shorter sample intervals and Soxhlet extraction to provide more-detailed characterization of PCB concentrations and to augment the ETPH data. PCBs were only detected in borings 1A, 3B, 1C, 2C, 3C and 4C. Concentrations greater than 1 mg/kg were identified in samples from 2C, 3C and 4C, and 6.3 mg/kg was the highest concentration reported (all Aroclor 1254). The highest concentration (boring 4C) was detected in a sample collected from near the depth of the water table and immediately downgradient of the former UST.

# Former 4,000-Gallon Underground Storage Tank (RA#3)

A former 4,000-gallon, waste-oil UST (RA#3) that received waste water-soluble oils was located northwest of the building from 1980 to 1996. Shanahan (1995) indicates that by the 1980s and possibly before that time, waste solvents were containerized separately for disposal. The UST was connected to a drain within the building by underground piping (GZA, April 1996). The 4,000-gallon UST was removed in 1996 under the oversight of GZA and was found to be in good condition with no evidence of release. Two plastic fill pipes and a galvanized-steel

vent pipe were removed to the edge of asphalt pavement and capped. Two of the sidewall soil samples that were collected by GZA when the UST was removed in 1996 were submitted for PCB analysis; PCBs were not detected and TPH concentrations were relatively low (11 and 470 mg/kg). Borings were drilled in this area of the site by LBG in 2009. ETPH was not detected in the three samples collected at the approximate depth of the water table, providing further evidence of no significant release from the UST.

In 2012, LBG collected a soil sample in the vicinity of the former interior drain that was formerly connected to this UST (B-103). Although the soil sample from B-103 contained a high concentration of petroleum hydrocarbons (17,250 mg/kg), PCBs were not detected. These data provide evidence of releases from the piping associated with this UST, but no indication that PCBs were present in the waste oil at any significant concentration.

# Bare Soil near Southern Door (PRA#8)

An area with no vegetation was observed near the southern door during a site visit in 1995. It was later identified (Scientech, 2004) that stainless-steel rings were stored in this area prior to 1995. Scientech collected surface- and subsurface-soil samples from this location for laboratory analysis in 2002. ETPH was detected in the surface-soil sample. Cyanide was not detected. Some metals concentrations (chromium, nickel and possibly cadmium) were elevated above typical background levels (total chromium at 1,080 mg/kg). LBG investigations in 2009 identified ETPH and 2.6 mg/kg of PCB (Aroclor 1254) in one 0-2 ft bg soil sample (B-12). According to Mr. Wendell, the rings were raw material and had not been machined by Dell prior to stockpiling them in this area, so it is not certain if these rings were the source of the ETPH and PCB.

Additional samples were collected in 2012 to delineate the area of PCB near B-12. The area of B-12 was resampled (B-12a) at depths of 0-0.25 ft bg and 0.25-0.5 ft bg. PCB (a mixture of Aroclors 1248 and 1254) was detected in the shallow sample at 2 mg/kg but was not detected in the deeper sample. Samples from nearby boring B-12d contained trace (<1 mg/kg) PCB (Aroclor 1254). Samples from nearby borings B-12b and B-12c did not contain PCBs at detectable concentrations.

# Transformer Area

The transformer is likely the original transformer and would have been installed circa 1967. In 2012, LBG collected four surface-soil samples (XFMR-1 through XFMR-4) from around the transformer to evaluate if a release had occurred. On the basis of those results, two additional soil samples (XFMR-1a and XFMR-1b) were collected. The sample locations are shown on figure 3. Petroleum hydrocarbons were not detected in the initial four samples; PCB was detected in one sample (XFMR-1 (0-0.5 ft bg)) at 1.2 mg/kg (Aroclor 1254). One of the two additional samples, XFMR-1b, collected approximately 4 feet south of sample XRMR-1, contained 1.1 mg/kg PCB. The sample collected to the north did not contain PCBs at detectable concentrations.

# **Building Interior**

Manufacturing processes have been conducted within the building since circa 1967. Small amounts of oil were noted near some of the operating machinery during site inspections and evidence of historical oil releases was evident in the form of light staining along the central portion of the interior of the eastern building wall. LBG conducted soil sampling (four borings below the northwestern corner of the building) in 2009 as part of the assessment of impacts to soil associated with RA#2, and 13 borings in 2012 to assess the former 4,000-gallon UST fill port and other manufacturing areas (including the eastern area). In total, 51 soil samples from below the building floor were submitted for ETPH analysis.

The highest ETPH concentrations were detected in samples from below the eastern floor (B-110 at 18,860 mg/kg at 0-1 ft bg and B-111 at 14,980 mg/kg at 2-3 ft bg) and near the former drain (B-103 at 17,250 mg/kg at 0-1 ft bg). Deeper samples from below the eastern floor (B-110 at 3,392 mg/kg at 5-6 ft bg) and below the drain (B-103 at 1,436 at 2-3 ft bg) contained significantly lower concentrations of ETPH. Low concentrations of ETPH were detected at two other sub-floor samples. Samples with the highest ETPH concentrations (B-103 (0-1 ft bg) and B-110 (2-3 ft bg)) were submitted for PCB analysis. PCBs were not detected.

# Groundwater

Groundwater samples were collected for PCB analysis from wells GZ-1S, GZ-1D, GZ-9S, GZ-9D, GZ-9R, MW-10D, GZ-10R, MW-14, MW-14D, MW-16D and MW-17 in April

2009. PCBs were not detected above a reporting limit of 0.05 mg/L (milligrams per liter). On May 17, 2012, an additional groundwater sample was collected from well MW-10D and analyzed for PCB. PCB was not detected above the reporting limit of 0.25 mg/L. See figure in Appendix I for well locations.

# 2.2.3 Interpretation of Available Data/Conceptual Site Model

The patterns of PCB occurrence and concentrations of PCB in the different areas suggest at least two different PCB sources.

- The highest PCB concentrations are associated with PRA#6, the former drum-storage area, which is the only area where PCB exceeded or even approached 50 mg/kg. PCB concentrations were highest in near-surface soil and typically decreased with depth, which is consistent with a surface release. Analysis of several samples from this area identified a mixture of PCB Aroclors 1248 and 1254, which differs from results from most other locations (e.g., RA#2 and the transformer area). The source of these PCBs may have been residual oils in used drums provided by vendors for use at the site or hydraulic oils from equipment. The date of this release is unknown, but staging of drums in this area was believed to have ceased in approximately 1995.
- Surface soil in a limited area of PRA#8, the area where parts from an outside source were staged pre 1995, is impacted with PCBs (a mixture of Aroclors 1248 and 1254).
- The distribution of low concentrations of PCBs in the subsurface soil at and below the water table at locations to the north and generally upgradient of RA#2 suggests a separate PCB source. It appears that cutting oils used at the facility and placed in the former 500-gallon UST contained low concentrations of PCBs (Aroclor 1254). Soil samples associated with this source contain PCBs at concentrations from <1 mg/kg to 6 mg/kg. These impacts are believed to be from a non-TSCA source with an unknown release date (pre 1980).
- Low concentrations of PCB Aroclor 1254 were detected in surface soil in the vicinity of the transformer, and based upon the Aroclor identified (1254 versus 1260), they are not attributed to transformer dielectric fluid (per telephone communication with Ken Hines of Connecticut Light and Power Company). These low concentrations of PCB are from an unknown source, but not from the former drum-storage area, with an unknown release date.
- A low concentration of Aroclor 1254 was identified in a shallow soil sample (B-117) in the unpaved drainage swale to the west of RA#2. The conceptual site model (CSM) for this area is that surface runoff from RA#2 could have impacted surface soil in the unpaved drainage swale.

#### 3.0 PROPOSED CLEANUP PLAN

#### 3.1 Cleanup Levels and Areas

or ELUR).

LBG and Seragon propose to differentiate remediate the Aroclor 1248 and 1254 mixture that ap unvol of any defined to be (PRA#6) and that may be subject to 40CFR Part 7 accordance with 40 CFR 761.61(a). The areas wher 350pm oamplus will held to he downgradient of RA#2 and the transformer area) will accordance with the RSRs. Remediation under th MManuny. concentration less than 1 mg/kg for accessible soil and removal to less than 10 mg/kg for inaccessible soil as defined in the RSRs (accompanied by an environmental land use restriction

Mestion in layerscale to clarify proposed exc. procedure Civen ament duta, following Chyduseuto centra 450ppm

The excalation area gueds to

In PRA#6, the initial excavation area will encompass borings B-50, B-51, B-52, B-7a, B-10a, 4D and 6C. The outer limits of this area are preliminarily defined by borings 3C, 3D, 4B, 5B and 7C, where PCB concentrations in shallow soil were less than 1 mg/kg, and the approximate extent of the excavation is outlined on figure 5. It is anticipated that remediation of this area will proceed as follows:

- The previous excavation will be deepened with the remediation goal being to achieve concentrations less than 1 mg/kg of the Aroclor 1248 and 1254 mixture. Soil containing PCB concentrations greater than 50 mg/kg (from the northeast corner of the excavated area) will be disposed of at CWM Chemical Services LLC, Model City, New York. Soils from this area that contain less than 50 mg/kg PCB will be disposed of as PCB remediation waste at Waste Management's Turnkey Landfill in Rochester, New Hampshire.
- Areas to the north, west and south of the previously excavated area will be excavated to a depth of 2 to 3 ft bg, based upon previous results at B-53, 4D and 6C. The excavation in this area will be expanded and deepened until the concentration of PCB identified as

<sup>&</sup>lt;sup>1</sup> "Inaccessible soil" is defined as polluted soil which is (A) more than four feet below the ground surface; (B) more than two feet below a paved surface comprised of a minimum of three inches of bituminous concrete or concrete, which two feet may include the depth of any material used as sub-base for the pavement; or (C) (i) beneath an existing building or (ii) beneath another existing permanent structure provided written notice that such structure will be used to prevent human contact with such soil has been provided to the Commissioner.

Aroclors 1248 and 1254 is less than 1 mg/kg. Samples from this area containing PCB less than 50 mg/kg will be disposed of as PCB remediation waste at Waste Management's Turnkey Landfill in Rochester, New Hampshire.

In the area of boring B-12a, the extent of PCBs greater than 1 mg/kg is defined by existing borings, so excavation will proceed to a depth of 0.5 ft bg in the area encompassing boring B-12a and defined by the building wall to the north, boring B-12d to the west, boring B-12c to the south and boring B-12b to the east. Since the PCB concentration in these soils is less than 50 mg/kg, LBG proposes to dispose of this soil at Waste Management's Turnkey Landfill in Rochester, New Hampshire. Excavation will be expanded and deepened as necessary until post-excavation sample PCB concentrations are less than 1 mg/kg for the Aroclor 1248 and 1254 mixture.

PCBs (and ETPH) in RA#2 and the transformer area will be remediated under the requirements of the Property Transfer Law to comply with the RSRs. It is anticipated that, at a minimum, soil containing PCB greater than 1 mg/kg and/or ETPH at a concentration greater than 2,500 mg/kg within 4 feet of grade level (and not below the building) will be removed and disposed of offsite. The excavations may be expanded to remove additional soil above the seasonal high water table and containing ETPH at concentrations above 500 mg/kg or until compliance with the GA Pollutant Mobility Criteria (PMC) can be demonstrated. To facilitate removal and disposal in coordination with the other remediation areas, LBG proposes to dispose of this soil at Waste Management's Turnkey Landfill in Rochester, New Hampshire. Environmental Land Use Restrictions ELURs will be used to prevent excavation or building removal in areas where ETPH and/or PCB in underlying soil exceeds the residential Direct Exposure Criteria.

# 3.3 Schedule

The soil removal is estimated to begin within 1 month of plan approval and is estimated to be completed within 3 months of plan approval, dependent upon weather conditions and disposal-facility approvals. Work may not be initiated between November 1 and April 30, so that site restoration (paving) can be accomplished promptly after backfilling.

LBG personnel will oversee all excavation and post-excavation sampling work. Soil removal and backfilling of excavations will be performed by contractors under the supervision of LBG.

# 3.4 Cleanup Verification

Soil confirmation samples will be collected following 40 CFR 761.61(a)(6) and 40 CFR 761 Subpart O to verify that cleanup to less than 1 mg/kg is complete. Samples will be collected along a 5-foot (~1.5 meter) grid in PRA#6 and PRA#8. At least three soil verification samples will be collected from each cleanup area and all samples falling on the grid within each cleanup area will be analyzed, either individually or as composite samples following 40 CFR 761.289. If PCBs (as Aroclors 1248 and 1254) are detected above the cleanup level of 1 mg/kg in the verification samples from a cleanup area, additional soil will be excavated and additional verification samples will be collected until the verification samples are below the cleanup level.

Following soil excavation adjacent to the northwestern building wall at PRA#6, wipe samples will be collected from the concrete foundation wall. These samples will be collected following 40 CFR 761 Subpart P for verification sampling of non-porous surfaces. If concentrations are above the high-occupancy cleanup level of <10 µg/100 cm² (micrograms per 100 cubic centimeters) for non-porous surfaces, then the surface will be decontaminated by wiping with water and sampled again to verify cleanup. If this is unsuccessful, the surface will be wiped with a solvent following 40 CFR 761.79(d) and sampled again to verify cleanup; this solvent-wiping process will be repeated until PCB concentrations are below the cleanup level. Other methods under 40 CFR Part 761.79(b) may be employed as necessary.

If it is determined that the exposed concrete is a porous surface, verification samples will be collected for bulk analysis of porous surfaces rather than surficial analysis of non-porous surfaces, with 1 mg/kg as the cleanup goal. All verification samples will be placed in laboratory-supplied glass jars and delivered to a Connecticut Department of Health certified laboratory for analysis. Samples will be analyzed for PCBs in accordance with 40 CFR Part 761.272 (U.S. Environmental Protection Agency (EPA) Methods 3500B/3540C or 3500B/3550B and EPA Method SW 846-8082. Analysis of all samples will follow Connecticut Reasonable Confidence Protocols (RCPs) for laboratory quality assurance and quality control.



# 3.5 Disposal

All soil designated for offsite disposal with greater than 50 mg/kg PCB will be disposed at a chemical waste landfill approved to receive TSCA waste (CWM Chemical Services LLC, Model City, New York or EQ/Wayne Disposal, Belleville, Michigan). Soil containing PCB less than 50 mg/kg will be disposed of at Waste Management's Turnkey Landfill in Rochester, New Hampshire. The specific transporter(s) will be identified after the work plan is approved. Soil containing PCB less than 50 mg/kg from other areas of the site (RA#2 and the transformer area) will also be disposed of at Waste Management's Turnkey Landfill.

# 3.6 Equipment Decontamination

Equipment that contacts the soil will be cleaned of visible soil by power washing or hand-brushing or scrubbing. Those portions of the equipment that contacted the PCB-contaminated soil will then be decontaminated using a clean performance-based organic decontamination fluid, such as a clean terpene hydrocarbon solvent, and such used solvent, personal-protective equipment and any utensils and/or tools that are not decontaminated will be disposed of as PCB remediation waste.

# 3.7 Containment Measures

Any removed material not directly loaded into a lined disposal container or dump truck will be placed on poly sheeting. Silt fence and/or hay bales will be installed at the down-slope edge of this sheeting to control potential erosion or sedimentation.

# 3.8 Health and Safety Measures

A site-specific health and safety plan will be prepared by the contractor selected to perform the abatement work. A copy of this plan will be kept on file at the site.

# 3.9 Deed Restriction

A deed restriction is not proposed as part of this PCB remediation plan. A deed restriction will be implemented as part of other remediation conducted pursuant to the Connecticut Property Transfer Law.

# 4.0 Written Certification

Pursuant to 40 CFR 761.61(a)(3)(i)(E), James Wendell, as a representative of Seragon Associates, hereby certifies that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file and are available for EPA inspection at:

Dell Manufacturing Company 4 Right Lane Farmington, Connecticut 06032

Seragon Associates

James Wendell

Managing Member

8/1/2012

K:\Uobs\DELL MANUFACTURING CO\PCB\Draft Work Plan ver 1.docx

TABLE

# Table 1 DELL MANUFACTURING CO. 4 RIGHT LANE FARMINGTON, CONNECTICUT

# Summary of PCBs and ETPH Detected in 2012 Soil Samples

| Sampled<br>Area    | Sample<br>Number | Sample    | Date      |  | Date Extracte | d    | PC   | В                        | PCB  | ET                | PH                       |
|--------------------|------------------|-----------|-----------|--|---------------|------|--|--------------------------|--|-------------------|--------------------------|
|                    |                  | Depth     | Collected | PCB  | ETPH          | SPLP | Extraction Method  |                          | Aroclor(s)   | Total             | SPLP                     |
|                    |                  | (ft bg)   |           |  |               | ETPH | Method 3545  | Soxhlet 3/               | Reported 1/  | (mg/kg)           | (mg/L                    |
|                    |                  |           |           |  |               |      | (mg/kg)  | (mg/kg)                  |  |                   |                          |
| sidential Direct E | xposure Criteri  | a         |           |  |               |      | (8,8)  | (1116/116)               | l N/A  | 2002/             | NI/A                     |
| Pollutant Mobili   | ity Criteria     |           |           |  |               |      | NE NE  | 7                        | N/A  | 500 <sup>2/</sup> | N/A<br>0.1 <sup>2/</sup> |
| PRA#6              | B-7a             | 0-0.25    | 3/2/12    | 3/5/12   |               |      | NA NA  | 13                       | 1248&1254  |                   |                          |
| Former Drum        |                  | 0.25-0.5  | 3/2/12    | 3/19/12  |               |      | NA.  | 44                       | 1248&1254  | NA<br>NA          | NA                       |
| Storage Area       |                  | 0.50-0.75 | 3/2/12    | 3/19/12  |               |      | NA NA  | 24                       | 1248&1254  |                   | NA.                      |
|                    | 1                | 0.75-1    | 3/2/12    | 3/2/12   | -             |      | NA NA  | 9.2                      | The second secon | NA.               | NA                       |
|                    |                  | 1-1.25    | 3/2/12    | 3/19/12  |               |      | NA NA  | 16                       | 1248&1254  | NA.               | NA                       |
|                    |                  | 1.25-1.5  | 3/2/12    | 3/29/12  |               |      | NA NA  |                          | 1248&1254  | NA NA             | N/A                      |
|                    |                  | 1.5-1.75  | 3/2/12    | 3/2/12   |               |      | The second secon | 4.0                      | 1254   | NA.               | NA                       |
|                    |                  | 1.75-2    | 3/2/12    | 3/29/12  |               | -    | NA.  | 3.4                      | 1248&1254  | NA.               | NA.                      |
|                    | B-10a            | 0-0.25    | 3/2/12    | 3/2/12   |               |      | NA   | 3.1                      | 1254   | NA.               | NA                       |
|                    | D 100            | 0.25-0.5  | 3/2/12    | 3/19/12  |               |      | NA   | 19                       | 1248&1254  | NA                | NA.                      |
|                    |                  | 0.50-0.75 | 3/2/12    | 3/19/12  |               |      | NA.  | 32                       | 1248&1254  | NA.               | NA.                      |
|                    |                  | 0.75-1    | 3/2/12    | 3/2/12   |               |      | NA.  | 15                       | 1248&1254  | NA                | NA.                      |
|                    |                  | 1-1.25    | 3/2/12    | The second secon |               |      | NA.  | 6.0                      | 1248&1254  | NA                | NA.                      |
|                    |                  | 1.5-1.75  | 3/2/12    | 3/19/12  |               |      | NA.  | 18                       | 1248&1254  | NA .              |                          |
|                    |                  | 1.75-2    |           | 3/2/12   |               |      | NA   | 0.89                     | 1254   | NA                |                          |
|                    |                  | 2.25-2.5  | 3/2/12    | 3/29/12  |               |      | NA   | 0.70                     | 1254   | NA .              |                          |
|                    |                  | 2.75-3    | 3/2/12    | 3/29/12  |               |      | NA:  | 0.67                     | 1254   | NA                |                          |
|                    | D 50             |           | 3/2/12    | 3/29/12  |               |      | NA.  | -0.36                    |  | NA.               | NA.                      |
|                    | B-50             | 0-0.25    | 3/2/12    | 3/2/12   |               |      | NA:  | 17                       | 1248&1254  | NA                | NA                       |
|                    |                  | 0.25-0.5  | 3/2/12    | 3/19/12  |               |      | NA   | 44                       | 1248&1254  | NA                | NA                       |
|                    |                  | 0.50-0.75 | 3/2/12    | 3/19/12  |               |      | NA NA  | 55                       | 1248&1254  | NA                | NA                       |
| 1                  |                  | 0.75-1    | 3/2/12    | 3/2/12   |               |      | NA:  | 51                       | 1248&1254  | NA                | NA                       |
| 1                  |                  | 1-1.25    | 3/2/12    | 3/19/12  |               |      | NA.  | 41                       | 1248&1254  | NA I              | NA                       |
|                    |                  | 1.25-1.5  | 3/2/12    | 3/19/12  |               |      | NA   | 7.4                      | 1248&1254  | NA                | NA                       |
|                    |                  | 1.5-1.75  | 3/2/12    | 3/2/12   |               |      | NA   | 2.8                      | 1248&1254  | NA                |                          |
|                    |                  | 1.75-2    | 3/2/12    | 3/29/12  |               |      | NA.  | -0.37                    |  | NA.               | NA                       |
| 1                  | B-51             | 0-0.25    | 3/2/12    | 3/2/12   |               |      | NA   | 26                       | 1248&1254  | NA.               | NA                       |
|                    |                  | 0.25-0.5  | 3/2/12    | 3/19/12  |               |      | NA   | 9.1                      | 1248&1254  | NA                |                          |
|                    |                  | 0.50-0.75 | 3/2/12    | 3/19/12  |               |      | NA   | 7.0                      | 1248&1254  |                   | NA                       |
|                    |                  | 0.75-1    | 3/2/12    | 3/2/12   |               | -    | NA.  | 2.6                      | 1248&1254  | NA.               | NA                       |
|                    |                  | 1-1.25    | 3/2/12    | 3/19/12  |               |      | NA NA  | 2.6                      | 1248&1254  | NA .              | NA                       |
|                    |                  | 1.25-1.5  | 3/2/12    | 3/19/12  |               | -    | NA NA  | 3.8                      | the first of the first of the state of the s | NA                | NA                       |
|                    |                  | 1.5-1.75  | 3/2/12    | 3/2/12   |               |      | NA NA  | 5.1                      | 1248&1254  | NA.               | NA                       |
|                    |                  | 1.75-2    | 3/2/12    | 3/19/12  |               |      | NA NA  | The second second second | 1248&1254  | NA.               | NA                       |
| 1                  | B-52             | 0-0.25    | 3/2/12    | 3/2/12   |               |      |  | 1.8                      | 1248&1254  | NA.               | NA.                      |
|                    | 1100005.000      | 0.25-0.5  | 3/2/12    | 3/19/12  |               |      | NA NA  | 200                      | 1248&1254  | NA.               | NA.                      |
| - 1                |                  | 0.50-0.75 | 3/2/12    | 3/19/12  |               |      | NA<br>NA   | 450                      | 1248&1254  | NA                | NA                       |
| 1                  |                  | 0.75-1    | 3/2/12    | 3/2/12   |               |      | NA.  | 8.9                      | 1248&1254  | NA.               | NA.                      |
| I                  |                  | 1-1.25    | 3/2/12    | 3/19/12  |               |      | NA NA  | 0.41                     | 1248   | NA:               | NA                       |
|                    |                  | 1.25-1.5  | 3/2/12    | 3/29/12  |               |      | NA NA  | < 0.73                   |  | NA.               | NA                       |
|                    |                  | 1.5-1.75  | 3/2/12    | 3/2/12   |               | -    | NA NA  | <u>~0.37</u>             |  | NA.               | NA                       |
|                    |                  | 1.75-2    | 3/2/12    | 3/29/12  | _             |      | NA.  | < () 38                  |  | NA                |                          |
| F                  | B-52A            | 0.25-0.5  | 6/14/12   | 3/49/14  | 6/15/12       |      | NA   | <.0.40                   |  | NA.               | NA:                      |
| -                  | B-52A            | 0.75-1    | 3/2/12    | 2/2/12   | 6/15/12       |      | NA NA  | NA                       |  | -10               | NA                       |
|                    | 13-33            | 1-1.25    | 3/2/12    | 3/2/12   |               |      | NA   | 2.9                      | 1248&1254  | NA.               | NA.                      |
|                    | 1                | 1.5-1.75  |           | 3/29/12  |               |      | NA   | 0.99                     | 1254   | NA                |                          |
|                    |                  | 1.3-1./3  | 3/2/12    | 3/2/12   |               |      | NA.  | ~0.37                    |  | NA                | NA                       |

# Table I DELL MANUFACTURING CO. 4 RIGHT LANE FARMINGTON, CONNECTICUT

# Summary of PCBs and ETPH Detected in 2012 Soil Samples

| Sampled              | Sample     |  | Date   |  | Date Extracte | ed      | PC   | PCB                   |             | ET                | PH     |
|----------------------|------------|--|--|--|---------------|---------|--|-----------------------|-------------|-------------------|--------|
| Area                 | Number     | Depth<br>(ft bg)   | Collected  | PCB ETPH   |               | SPLP    | Extraction Method  |                       | Aroclor(s)  | Total             | SPLI   |
|                      |            | (ft bg)  |  |  |               | ЕТРН    | Method 3545<br>(mg/kg)   | Soxhlet 3/<br>(mg/kg) | Reported 1/ | (mg/kg)           | (mg/L) |
| esidential Direct Ex |            | a  |  | -  |               |         | 1  |                       | N/A         | 5002/             | N/A    |
| A Pollutant Mobilit  | y Criteria |  |  |  |               |         | NE   |                       | N/A         | 500 <sup>2/</sup> | 0.12/  |
| PRA#2                | 1A         | 0-0.25   | 4/24/12  | 4/25/12  | T             |         | NA   | <0.43                 |             | 1                 |        |
| Former Waste-Oil     |            | 0.25-0.5   | 4/24/12  | 4/25/12  |               |         | NA NA  | 0.41                  |             | NA.               | NA     |
| UST                  |            | 4-5  | 4/24/12  | 5/10/12  | 5/10/12       |         | NA NA  | < 0.38                | -           | NA.               | NA.    |
|                      |            | 5-6  | 4/24/12  | 4/25/12  | 5/10/12       | 6/7/12  | NA NA  | < 0.38                |             | 720               | NA     |
|                      |            | 7-8  | 4/24/12  | 4/25/12  | 3/10/12       | 0///12  | NA NA  |                       |             | 690               | <0.1   |
|                      |            | 10-11  | 4/24/12  | 5/10/12  | 5/18/12       |         | NA NA  | 0.61                  | 1254        | NA<br>4 100       | NA.    |
|                      |            | 11-12  | 4/24/12  | 5/10/12  | 5/18/12       |         |  | 0.97                  | 1254        | 4,100             | NA.    |
|                      |            | 12-13  | 4/24/12  | 5/10/12  | 5/18/12       |         | NA<br>NA   | 0.74                  | 1254        | 6,400             | NA.    |
|                      | 2A         | 0-0.25   | 4/24/12  | 4/25/12  | 3/10/12       |         |  |                       | 1254        | 4,300             | NA.    |
|                      | (7,0,7):   | 0.25-0.5   | 4/24/12  | 4/25/12  | -             |         | NA<br>NA   | ~0.43 *               |             | NA                | NA.    |
|                      |            | 1-2  | 4/24/12  | 4/23/12  |               |         | The second of th | 0.38                  |             | NA.               | NA:    |
|                      |            | 4-5  | 4/24/12  | 6/6/12   | 5/10/12       | -       | NA<br>NA   | NA<br>O NA            |             | NA.               | NA.    |
|                      |            | 5-6  | 4/24/12  | 4/25/12  | 5/10/12       |         | NA NA  | < 0.35                |             | 180               | NA.    |
|                      |            | 6-7  | 4/24/12  | 4/25/12  | 3/10/12       |         | The second secon | -0.35                 |             | 300               | NA     |
|                      |            | 7-8  | 4/24/12  | 4/25/12  | 5/18/12       |         | NA   | NA NA                 |             | NA.               |        |
|                      |            | 8-9  | 4/24/12  | 4/23/12  | 3/18/12       |         | NA NA  | <0.36                 |             | <11               |        |
|                      |            | 9-10   | 4/24/12  |  | 5/19/13       |         | NA   | NA                    |             | NA.               | NA.    |
| 1                    | 3A         | 0-0.25   | 4/24/12  | 4/25/12  | 5/18/12       |         | NA.  | NA.                   |             | <11               | NA.    |
|                      |            | 0.25-0.5   | 4/24/12  | 4/26/12  |               |         | NA.  | < 0.46                |             | NA.               | NA     |
| 1                    |            | 4-5  | 4/24/12  |  |               |         | NA NA  | <0.41                 |             | NA.               | NA     |
| 1                    |            | 5-6  | 4/24/12  | 6/6/12<br>4/26/12  |               |         | NA NA  | < 0.35                |             | NA                |        |
| 1                    |            | 7-8  | 4/24/12  | 4/26/12  |               |         | NA.  | ~0.37                 |             | NA.               | NA.    |
| T I                  | 1B         | 0-0.25   | 4/24/12  | 4/26/12  | -             |         | NA.  | =0.36                 |             | NA                | NA.    |
| 1                    |            | 0.25-0.5   | 4/24/12  |  |               |         | NA.  | < 0.42                |             | NA.               |        |
| 1                    |            | 4-5  | 4/24/12  | 4/26/12<br>6/12/12   | 676.00        |         | NA.  | < 0.38                |             | NA                | NA.    |
|                      |            | 5-6  | 4/24/12  | The second secon | 6/6/12        |         | NA.  | -0.36                 |             | 630               | NA.    |
|                      |            | 7-8  | 4/24/12  | 4/26/12<br>4/26/12   | 6/6/12        |         | NA.  | < 0.37                |             | - 11              |        |
|                      | 2B         | 0.25-0.5   | 4/26/12  | 4/20/12  |               |         | NA.  | < 0.37                |             | NA .              | NA.    |
|                      |            | 0.5-0.75   | 4/26/12  | The second secon |               |         | NA .   | -0.36                 | -           | NA                |        |
| 1                    |            | 4-5  | 4/26/12  | 4/27/12  |               |         | NA.  | -0.36                 |             | NA                |        |
|                      |            | 5-6  | 4/26/12  | 6/6/12   |               |         | NA NA  | 0.36                  |             | NA                | NA     |
|                      |            | 7-8  | 4/26/12  | 4/27/12  |               |         | NA.  | <0.35                 |             | NA.               | NA     |
| F                    | 3B         | 0.25-0.5   | 4/26/12  | 4/27/12  |               |         | NA.  | < 0.36                |             | NA                | NA     |
|                      | JD         | 0.5-0.75   |  | 4/27/12  |               |         | NA   | 0.46                  | 1254        | NA.               | NA.    |
| - 1                  |            | 4-5  | 4/26/12  | 4/27/12  |               |         | NA.  | < 0.35                |             | NA                | NA.    |
| - 1                  |            | 5-6  | 4/26/12<br>4/26/12   | 6/6/12   | 6/6/12        |         | NA NA  | < 0.37                |             | -11               | NA.    |
| 1                    |            | 7-8  | 4/26/12  | 4/27/12  | 6/8/12        |         | NA.  | < 0.36                |             | <11               |        |
| -                    | 4B         | 0.25-0.5   | 4/26/12  | 4/27/12  |               |         | NA.  | -0.36                 |             | NA.               | NA     |
|                      | 75         | 0.5-0.75   | The second of the second secon | 4/27/12  |               |         | NA   | < 0.36                |             | NA.               | NA.    |
|                      |            | 4-5  | 4/26/12  | 4/27/12  |               |         | NA.  | < 0.37                |             | NA                | NA     |
|                      | T)         | 5-6  | 4/26/12  | 6/6/12   | 6/6/12        |         | NA   | < 0.37                |             | <11               | NA.    |
|                      |            | 7-8  | 4/26/12  | 4/27/12  | 6/6/12        |         | NA   | -0.36                 |             | <22               | NA:    |
| -                    | 5B         | 0.25-0.5   | 4/26/12  | 4/27/12  |               |         | N/A  | 0,36                  |             | NA                | NA.    |
|                      | 20         | 0.23-0.3   | 4/26/12  | 4/27/12  |               |         | NA   | <0.34                 |             | NA.               | NA:    |
|                      | 1          | The second secon | 4/26/12  | 4/27/12  | 4161          |         | NA.  | -0.35                 |             | NA                | NA     |
|                      | 1          | 4-5<br>5-6   | 4/26/12  | 6/6/12   | 6/6/12        | -       | NA.  | -0.36                 |             | -11               | NA     |
|                      | 1          | 7-8  | 4/26/12  | 4/27/12  | 6/6/12        |         | NA.  | < 0.34                |             | 890               |        |
| -                    | 1C         | 0.25-0.5   | 4/26/12  | 4/27/12  |               |         | NA   | r0.37                 |             | NA                | NA     |
|                      | 10         | The second secon | 4/26/12  | 4/27/12  |               |         | NA   | < 0.34                |             | NA                | NA.    |
| 1                    | 1          | 0.5-0.75   | 4/26/12  | 4/27/12  |               |         | NA.  | - 0.33                |             | NA                | NA     |
| k                    |            | 4-5  | 4/26/12  | 6/6/12   |               | 6/14/12 | NA   | 0.45                  | 1254        | NA                | < 0.1  |
|                      |            | 5-6  | 4/26/12  | 4/27/12  |               |         | NA.  | -0.36                 |             | NA                | NA     |
|                      |            | 7-8  | 4/26/12  | 4/27/12  |               |         | NA.  | < 0.37                |             | NA                | NA     |